

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003902**Date Inspected:** 12-Sep-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 1400**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2230**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Fu Yu Hong**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG**Summary of Items Observed:**

CALTRANS Quality Assurance (QA) Inspector, Alfredo Acuna was present for the fabrication scheduled for this project at the ZPMC facility in Shanghai, China for the San Francisco Oakland Bay Self Anchored Suspension Bridge.

OBG Deck Panel repairs at DP-049-001 welds 1 thru 10.

The QA inspector had a conversation with Caltrans representative John Kinsey; Mr. Kinsey informed to the QA inspector was going to start with a crack like indications repair demonstration at the partial penetration weld jointing the U-rib to the deck at the deck panels DP-049-001, DP-050-001 and DP-051-001. Mr. Kinsey informed the QA inspector intended repairing as follows:

The procedure is going to be as follows:

Excavate the weld metal by grinding 50 mm at both sides of the indication.

Assure 80 percent depth of excavation was achieved with the template.

Perform magnetic particle testing (MT) to the excavation.

Preheat as per Welding procedure specification.

Weld the root pass utilizing the flux cored arc welding process.

Grind the root pass and blend with adjacent welds.

Perform MT to the root area.

Weld the rest of the excavation utilizing FCAW

Ground flush

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Caltrans representatives would perform ultrasonic testing (UT) with the conventional method; if the indication is still remaining phase array needs to confirm the crack like indications.

In addition, Mr. Kinsey said that: 1. ZPMC plan to change the electrode. 2. ZPMC was not intended to search for indication. 3. ZPMC was going to excavate until reach 10 mm of depth and stop 4. the QA inspector has to reject by PA the relevant indication that were located under 9.6 mm.

Note: Phased Array Sizing Approach- The QA inspector had discussed to the Mr. Kinsey, Mr. Dave McClary and Mr. Joe Lanz that in order to size the indication with accuracy. The QA inspector recommended to have a approved phased array procedure and use a 5Mhz transducer with the 16 mm aperture (with give a beam spot 1.6 mm in lieu of 8 mm with 2 MHz transducer which oversize the indication on the 6 dB drop technique). The QA inspector was informed that Mr McClary was doing a UTPA procedure for sizing the indications. In phone conversation, the QA inspector said to Mr. McClary that the QA inspector could get an estimate of the size of the indication by picking the maximum amplitude of the indication, located the approximate depth at the maximum amplitude and compare the amplitude with the notches , 1 mm drill side hole, cracks like indication on hand to estimate the size. Mr. McClary agreed to get this approach until the high frequency transducer arrive to Shanghai.

Note: After ZPMC excavate 15 areas marked by QA inspectors for crack like indications on the tack welds the QA inspector observed visually 5 cracks like indications. 5 indications were reported by ZPMC MT technician Wang Wei and CWI Li Yan Hua. See attached indication below.

The QA inspector performed UTPA to 7 locations the QA inspector found 2 crack like indication remains weld # 3 Y location 7320 mm and weld # 9 Y location 10260 mm.



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## Summary of Conversations:

As noted above.

## Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco, 858 344-8746, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Acuna,Alfredo	Quality Assurance Inspector
<b>Reviewed By:</b>	Lanz,Joe	QA Reviewer

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